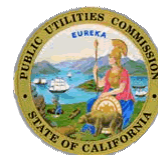


**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



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Order Instituting Rulemaking Regarding  
Microgrids Pursuant to Senate Bill 1339 and  
Resiliency Strategies.

Rulemaking 19-09-009  
(Filed September 12, 2019)

**BLOOM ENERGY CORPORATION PROPOSALS IN RESPONSE TO  
ADMINISTRATIVE LAW JUDGE'S RULING ON POTENTIAL MICROGRID AND  
RESILIENCY SOLUTIONS FOR COMMISSION RELIABILITY ACTION  
TO ADDRESS GOVERNOR NEWSOM'S JULY 30, 2021,  
PROCLAMATION OF A STATE OF EMERGENCY**

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### ATTACHMENT A: Microgrid Capacity Services Tariff (MCST)

**BEFORE THE PUBLIC UTILITIES COMMISSION  
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PROCLAMATION OF A STATE OF EMERGENCY**

In accordance with Rule 6.2 of the California Public Utilities Commission (“Commission”) Rules of Practice and Procedure, Bloom Energy Corporation (“Bloom Energy”) submits two proposals in response to the Administrative Law Judge’s Email Ruling on Potential Microgrid and Resiliency Solutions for Commission Reliability Action to Address Governor Newsom’s July 30, 2021, Proclamation of a State of Emergency dated August 23, 2021 (the “Ruling”). Bloom Energy welcomes this opportunity to offer constructive solutions designed to delivery energy in a timely manner and reduce demand constraints, as well as to respond to the questions posed in the Ruling.

At the outset, the following context may be helpful to underline the important contributions that this phase of the proceeding can make to California’s pressing energy system needs. In August 2020, in response to urgent requests to support the energy system and reduce rolling outages at the net peak, Bloom Energy customers voluntarily exported power to the grid, in addition to cutting their own load by a commensurate amount — effectively doubling the export value. In doing so, Bloom Energy’s customers contributed to the gigawatt or more of behind-the-meter (BTM) resources brought to bear in that

emergency,<sup>1</sup> a significant portion of which was without compensation or a tariff structure.<sup>2</sup> By comparison, on Sept. 7, 2021, the California Independent System Operator (CAISO) requested an extraordinary emergency order from Energy Secretary Granholm<sup>3</sup> to interconnect less than half of that amount - 200 MW - of capacity procured as a result of Governor Newsom's July 30, 2021 Proclamation of a State of Emergency ("Emergency Proclamation").<sup>4</sup>

Bloom Energy appreciates this opportunity to propose a tariff structure that would systematize last summer's voluntary responses, and channel their capabilities to form a keystone of dependable, reliable and resilient support for California's energy system by Summer 2022 and beyond, particularly during net peak and other grid stress conditions. We also propose a tariff amendment that would augment the ability of fuel cell customers

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<sup>1</sup> BTMs, including demand response and batteries, contributed well over one gigawatt of capacity in the August 2020 events. California Independent System Operator, California Public Utilities Commission & California Energy Commission, "Final Root Cause Analysis, Mid-August 2020 Extreme Heat Wave," at p. 108 (Jan. 13, 2021)(Final Joint Agency Root Cause Analysis). available at: <http://www.caiso.com/Documents/Final-Root-Cause-Analysis-Mid-August-2020-Extreme-Heat-Wave.pdf>; Penn, "Its Electric Grid Under Strain, California Turns to Batteries" (N.Y. Times, Sept. 30, 2020)(Penn/NY Times), available at <https://www.nytimes.com/2020/09/03/business/energyenvironment/california-electricity-blackout-battery.html>; St. John, "Consumers are Playing a Big Role in Keeping the Lights on in California This Week" (GreenTech Media, Aug. 19, 2020), available at <https://www.greentechmedia.com/articles/read/how-california-has-escaped-more-rollingblackouts-this-week>.

<sup>2</sup> See, e.g., Penn/NY Times, *supra* n.1. Note that without a tariff structure to incentivize desired performance, some BTM resources performed in ways that did not take the system capacity shortages into account, contributing to grid stress rather than grid relief. See Roselund, "The California Blackout That Wasn't" (RMI June 28, 2021), available at <https://rmi.org/the-california-blackout-that-wasnt/>

<sup>3</sup> Letter of Mark Rothleder, CAISO Senior Vice President and Chief Operating Officer, to the Jennifer Granholm, Secretary of Energy at DOE, Regarding Request for Emergency Order Pursuant to Section 202(c) of the Federal Power Act, (Sept. 7, 2021), available at: [Sep7-2021-Request-Department-Energy-EmergencyOrder-Section202c-FederalPowerAct.pdf \(caiso.com\)](https://www.caiso.com/Documents/Sep7-2021-Request-Department-Energy-EmergencyOrder-Section202c-FederalPowerAct.pdf).

<sup>4</sup> Proclamation of a State of Emergency, (July 30, 2021), available at: <https://www.gov.ca.gov/wp-content/uploads/2021/07/Energy-Emergency-Proc-7-30-21.pdf>.

to reduce reliance on the grid during stress periods, and potentially offer greater grid support.

## SUMMARY OF RECOMMENDATIONS

Bloom Energy respectfully submits the following comments urging the Commission to:

- ***Systematize and incentivize behind-the-meter microgrids to support overall energy system resilience and reliability.*** Microgrid configurations offering support to energy system planning and operational needs, as well as meeting the performance standards set forth in D. 21-07-011 and other specified criteria, would be eligible for this tariff.
- ***Leverage available, resilient infrastructure to support grid reliability and resilience, particularly during emergencies, by amending the Fuel Cell NEM tariff to allow pairing with storage.*** Bloom Energy alone has 3.4 MW of batteries currently available that could be used to reduce energy system stress, particularly during emergency conditions, if the NEMFC tariff is updated to allow storage pairing; additional storage pairing could help address system capacity shortfalls and other reliability needs for 2022 and 2023.

## I. INTRODUCTION

Bloom Energy is pleased to respond to the Administrative Law Judge's request for proposals to leverage microgrids to enhance reliability and resiliency. As we did in August 2020, Bloom Energy stands ready to help make its existing resource base available to be of service. Our technologies can rapidly bring new resources to bear towards relieving grid stress, and we are pleased to turn our expertise and experience as a technology provider, developer and systems manager to assist in achieving the Commission's objectives for this track of the proceeding. The solutions Bloom Energy details below are intended to reduce strain on the grid, and potentially to increase capacity, at the times this support is needed most.

The proposals are also intended to further the clear intent of this microgrid proceeding, as well as of directives of SB 1339. These proposals would offer "relief valves" against increasing energy system stress by enhancing the commercialization of microgrids and increasing customer

investments that would contribute to greater reliability and resilience. As the Legislature declared in adopting SB 1339:

“[T]he Public Utilities Commission, Independent System Operator, and State Energy Resources Conservation and Development Commission must take action to help transition the microgrid from its current status as a promising emerging technology solution to a successful, cost-effective, safe, and reliable commercial product that helps California meet its future energy goals and provides end-use electricity customers new ways to manage their individual energy needs.”<sup>5</sup>

In responding to the Emergency Proclamation, the Commission has taken the appropriate step to leverage this proceeding to address both immediately urgent capacity shortfall concerns for 2022-2023, as well as the ongoing reliability concerns noted in the Ruling. As observed in the Ruling, “the physical impacts of a warmer world will lead to increased challenges, compounding one another – and as extreme events become more intense and more frequent, we must recover by building greater reliability and resiliency.”<sup>6</sup> Bloom Energy appreciates the call for microgrid providers to contribute solutions to the energy system’s immediate and long-term reliability needs and policy objectives. We fully agree with the Ruling that “there may be actions that the Commission can take here in this docket, under Microgrids and Resiliency Strategies, that will help support the Governor’s and the Commission’s overall goals”<sup>7</sup> – and that the only solution to the increasingly frequent and severe challenges we face is to “recover by building greater reliability and resiliency.”<sup>8</sup> Consistent with SB 1339, the microgrid proceeding is the right venue to harness California’s innovative and entrepreneurial spirit to tap into capabilities of private sector investment. It also serves as a key venue for utilities, other energy stakeholders and the

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<sup>5</sup> Section (1)(e), S.B. 1339 (Stern), Chapter 566, Statutes of 2018.

<sup>6</sup> Ruling, page 6.

<sup>7</sup> Id.

<sup>8</sup> Id.

public sector to collaborate in establishing a regulatory framework that unleashes this extraordinary and much-needed potential.

Bloom Energy’s proposals address the near-term energy stability issues currently facing the State, while advancing the State’s current trajectory towards a clean and equitable energy system, consistent with the Ruling and its recitation of the twin aims of the Emergency Proclamation. Microgrids have potential that has never been formally tapped to serve California’s resiliency and reliability needs. The extraordinary voluntary responses by Bloom Energy’s customers and many other BTM technologies, amounting to many hundreds of megawatts, provide a strong indication of what they could provide with a formal tariff structure and appropriate economic signals. Bloom Energy looks forward to working with Commission staff in developing solutions that will have both immediate and long-lasting beneficial impacts for the energy system and the Commission’s policy goals.

## **II. DISCUSSION**

As directed by the Ruling, Bloom Energy provides the details of its proposals using the prescribed format. We first offer a brief overview of the proposals for context and to help frame their overall benefits to the Commission’s objectives: “resiliency and microgrid projects installed and delivering reliability benefits by Summer 2022 and/or Summer 2023.”

### **A. Overview of the Proposals.**

#### **1. *Systematize and incentivize behind-the-meter microgrids to support overall energy system resilience and reliability through a Microgrid Capacity Services Tariff (MCST).***

The Commission should adopt an auxiliary microgrid tariff designed to meet this moment, separate from the constraints and complexities of existing BTM tariffs that may cloud the ability to respond quickly to California’s urgent needs. A new tariff could make both new and existing microgrid capacity available to address pressing capacity shortfalls and further

short- and long-term reliability and resiliency, building on the foundation the Commission established in D. 21-07-011. The basic architecture of the proposed tariff, referred to in this filing as a “Microgrid Capacity Services Tariff” (MCST), is briefly summarized below. As directed by the Ruling, further details of the proposal are provided in response to the Ruling’s questions. Participation in this tariff would be in lieu of any other tariff that might otherwise be available for the resources contributing to the microgrid.

**B. Microgrid Capacity Services Tariff Eligibility, Performance Criteria, and Compensation Structure**

- ***Eligibility and performance criteria:*** Microgrids must meet the performance, environmental and climate requirements delineated in D. 21-07-011, as well as long-duration performance capabilities notwithstanding extreme weather conditions of at least three days (72 hours).
- ***Compensation:*** Consistent with the approach and structure of the Emergency Proclamation, microgrid customers participating in this tariff would receive a capacity payment of 0.02/kW, with payment equivalent to that offered through the Emergency Proclamation for energy provided in response to CAISO Grid Warning or Grid Emergency notice (i.e., \$2/kWh). Payment for all other incidental exported generation would be at the generation component price provided in the customer’s Otherwise Applicable Schedule (OAS) on a net annual basis.



**2. *Leverage available, resilient infrastructure to support grid reliability and resilience, particularly during emergencies, by amending the Fuel Cell NEM tariff to allow pairing with storage***

The Commission should allow customers to further reduce stress on the energy system, particularly during capacity shortages, by allowing them to pair batteries or other storage devices with fuel cells deployed under the Fuel Cell NEM (NEMFC) tariff. Bloom Energy alone has 3.4 MW of batteries available now at customer sites or in U.S. warehouses that could contribute to alleviating immediate capacity shortages. As discussed below in response to the Ruling's questions, safety is paramount and appropriate constraints must be followed in any utilization of paired storage, but the proscription against their use when the additional capacity they represent is so greatly needed is inconsistent with the Emergency Proclamation and the Commission's overall objectives. We propose following the approach outlined in the advice letter (AL) submitted by Pacific Gas & Electric Company (PG&E), AL 5308-E,<sup>9</sup> modified to reflect the Commission's approach in D. 20-06-017 to storage pairing with other BTM resources to enable greater reliability support.<sup>10</sup>

**III. PROPOSAL DETAILS & RESPONSES TO RULING QUESTIONS**

The details of Bloom Energy's proposals, and our responses to the questions posed in the Ruling, are provided below. We look forward to expanding on these proposals through the process outlined in the Revised Scoping Order and the Ruling.

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<sup>9</sup> Commission staff determined that AL 5308-E raised policy questions that required decision by the Commission, and as such was beyond the scope of the advice letter approval process as a procedural matter, but did not reject the Advice Letter on the merits. AL 5308-E: [https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC\\_5308-E.pdf](https://www.pge.com/tariffs/assets/pdf/adviceletter/ELEC_5308-E.pdf).

<sup>10</sup> D. 20-06-017, available at: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M340/K748/340748922.PDF>

## **A. Prevention vs. Mitigation of System Capacity Shortfall**

### **1. Is the proposal intended to help prevent a system capacity shortfall from occurring, or does it help mitigate the impact of rotating outages, should they be needed? Specify how.**

Bloom Energy's proposals are intended to help prevent both system capacity shortfalls as well as to mitigate the impacts of any rotating outages that may be called. The proposed MCST, as well as the storage augmentation of the NEMFC tariff, would incentivize customers to reduce demand on the grid, alleviating system capacity shortfalls and enabling available energy supply to serve the electrical grid writ large. Both proposals would also help mitigate any outages that may occur. The MCST would enable grid export by participating customers in response to emergency capacity calls. The NEMFC storage augmentation would similarly enable additional resiliency by allowing customers additional flexibility to protect critical loads while reducing grid reliance, particularly during shortfall or other stress events.

A microgrid configuration enabled with clearly articulated performance requirements, including long duration islanding capabilities, would afford the customer generating facility the opportunity to act similarly to an energy efficiency mechanism, reducing the demand seen by the overall energy system. The criteria proposed for the MCST builds on the Commission's precedent in D. 21-07-011 to assure participating microgrids can provide resilient and reliable support notwithstanding weather, wildfires, or any bulk energy system or distribution system disruptions. With the appropriate market signals, such as those presented in the Emergency Proclamation that serves as the basis for the MCST, microgrids can both export back to the grid when those exports are needed to prevent shortfalls and reduce the scope and duration of rotating outages, in addition to providing the permanent load reduction. Similarly, adding storage capacity to NEMFC deployments increase the flexibility of customers to respond to grid conditions while retaining the most critical value of their investment in reliability and resilience.

**2. How does the proposal address the potential conflict between making resources available to the system to help prevent a system capacity shortfall from occurring and reserving resources for private use to mitigate the impacts of a potential outage?**

The MCST and the NEMFC storage augmentation proposals are designed with elements to address both system capacity shortfalls as well as reserving resources for private use. The MCST would provide an economic signal to decrease the capacity that relies on the grid overall, relieving grid stress, and an even stronger signal, modeled on the Emergency Proclamation, to incentivize contributions to the grid to prevent or minimize potential outages. The MCST would require participating microgrid customers wishing to be eligible for emergency capacity payments to guarantee, on an annual basis, a “set aside” that can be called upon if a capacity shortfall does arise. This election would be made in the forward timeframe, specifying the “set aside” capacity at varying times of day and across seasonal periods, to enable inclusion of the capacity in resource planning exercises and ongoing operational considerations. This type of mechanism is a time-tested approach that both utilities and customers have found workable in historic and current interruptible programs.<sup>11</sup> If this structure were in place, Bloom Energy customers alone could potentially export sufficient energy to power as many as 15,000 homes.

The NEMFC storage augmentation proposal would enable host customers to make fuel cell capacity available for the grid while assuring, through the use of BTM storage, that the critical needs that prompted their investment were still met during stress period hours. The latter would make immediate use of battery capacity already available in California to address imminent reliability concerns, and incentivize deployment of additional storage capacity.

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<sup>11</sup> See See, e.g., PG&E’s Base Interruptible Program, [https://www.pge.com/en\\_US/large-business/save-energy-and-money/energy-management-programs/demand-response-programs/base-interruptible/base-interruptible.page?WT.mc\\_id=Vanity\\_bip](https://www.pge.com/en_US/large-business/save-energy-and-money/energy-management-programs/demand-response-programs/base-interruptible/base-interruptible.page?WT.mc_id=Vanity_bip).

**3. If a proposal is intended to prevent system capacity shortfall from occurring and it includes customer-owned or customer-hosted resources, how will availability of those resources to prevent capacity shortfall be guaranteed? Specify how they will be measured and how safety will be ensured?**

Bloom Energy's proposals could readily incorporate elements that provide visibility to system planners and operators in the timeframes they need, and assure continued safety for customers and all energy system workers.

**a. Planning & Operations**

The MCST would provide two aspects of system relief. First, it would enable permanent load reductions through utilization of BTM microgrids that meet the high availability and low variability standards adopted in D. 21-07-011, and whose capacity and performance can be measured and monitored. Second, as discussed above in response to Question 2, participating customers could be required to identify, within the planning horizon, reserved and available capacity. Performance, including response to any emergency capacity calls, can be measured and reported through highly reliable, financial-quality data systems currently used for contract payment and systems monitoring.

**b. Safety.**

Bloom is proud of its unblemished safety record – not just for its own personnel, but for those of its customers and the utilities with which it has interconnected globally. Further, the requirements of IEEE1547, UL1741, California's Rule 21 and the statutory directive in SB 1339 around safety are well established and adhered to by Bloom Energy systems. The proposed paired storage fuel cell microgrid utilizes the same Bloom Energy Certified Smart Inverter, the latest version of an inverter design that has operated safely and reliably for over a decade. Bloom has successfully and safely operated numerous paired storage microgrids across the nation, providing additional capacity during peak periods, and looks to extend that support to California.

## B. Islanding

Given that the ability to island is the primary factor distinguishing microgrids from other types of distributed energy resources:

- 1. Is islanding, separate from any associated reduction in load or increase in generation, essential to the ability of the proposal to address the system capacity shortfall? If so, please describe in detail how islanding is expected to directly help.**

As a matter of law, microgrids include systems of resources that run in parallel with the grid, as well as those capable of islanding. SB 1339 defines microgrids as:

“[A]n interconnected system of loads and energy resources, including, but not limited to, distributed energy resources, energy storage, demand response tools, or other management, forecasting, and analytical tools, appropriately sized to meet customer needs, within a clearly defined electrical boundary that can act as a single, controllable entity, and can connect to, disconnect from or run in parallel with, larger portions of the electrical grid, or can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure.<sup>12</sup>”

This definition clearly provides that islanding is *not* the sole function of a microgrid, but rather is an attribute of some microgrids. Allowing for islanding of some part of a microgrid will be key to ensuring that a wider range of customers can participate and thus make a larger contribution to the overall needs contemplated by the Emergency Proclamation.

The MCST proposal presumes that participating customers would identify and provide a permanent load reduction, and those that elect to offer emergency capacity would not island some part of the microgrid components/loads, and would retain the ability to export, unless the grid is down and unable to accept injections. We note that other factors may well be of greater importance and relevance to microgrid customers than islanding. Microgrids provide a system of

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<sup>12</sup> Public Utilities Code Section 8370(d).

resources and capabilities that can improve reliability and long-cost control and planning for customers, meeting their own economic, budgeting and planning needs.

**1. Does islanding indirectly supplement or enhance the ability of other resources like storage, generation, or demand response to help prevent a system capacity shortfall from occurring? If so, please describe in detail how islanding is expected to indirectly help. In the response, identify what types of generation or load reduction resources the microgrid would support**

Microgrids can take multiple forms and offer a variety of values to the host customer and to the larger grid. It is possible, within a single microgrid, for a portion of a microgrid to be fully islanded at all times, to protect critical applications that cannot withstand any variability in power quality under any circumstances; other portions of the microgrid to have the ability to island when the grid goes down to avoid business disruptions; and other less sensitive portions of the microgrid to operate in parallel with the grid, while still enjoying the benefits of customer-sided investments to better control and predict costs, as well as provide additional assurance of power quality and reliability. Individual microgrids may have any combination of these characteristics.

As the Commission's Customer Choice initiative highlighted, customers are driven to invest in resources to that meet their own business needs and fit their own cost/benefit appetites. For some customers, the ability to island is an absolute prerequisite to invest in deploying a microgrid; for others, islanding capability is frankly not essential. From a grid support perspective, any portion of a microgrid that has been islanded offers no system-wide electrical benefit, other than the permanent load reduction that the BTM resources incorporated within it provides (whether islanded or not). If it were not for tariff support of islanded microgrids, however, the customer may have never made the investment in the microgrid system in the first place, and the grid would not have benefited from the permanent load reduction. Providing a workable tariff – one that allows for, but does not require, islanding and the variety of other tools

that can be used to protect specific loads to varying degrees of need – is the key to ensuring customers will actually invest in microgrids that provide capacity reductions and/or energy export capabilities.

### **C. Leveraging Existing Microgrid & Resiliency Programs**

#### **1. How should microgrid projects that participate in the suspension of the capacity reservation component of the standby charge, pursuant to Decision 21-07-011, be required to help address a system capacity shortfall, particularly during the net peak hours?**

The Commission spelled out very specific criteria for technologies to seek relief from the reservation capacity portion of the standby charge. That examination, which served as a focal point of Track 3 of this proceeding, was largely informed by an adherence to cost causation principles. A net system benefit can be generated by the avoidance of, planning for, and procuring standby power on behalf of a particular subset of customers that are able to meet specific performance criteria. Simply put, resources that meet the criteria adopted by the Commission in D. 21-07-011 do not cause the costs associated with the reservation capacity portion of the standby charge, and in accordance with the Commission's long-held philosophy with respect to cost causation, the Commission determined that those resources therefore should not bear those costs.

The Commission, through this phase of Track 4 of the proceeding, is now turning its attention to other reliability issues, focusing on system capacity shortfalls and especially those during the net peak hours. It is true that the high availability and low variability of the resources qualifying for the suspension of the capacity reservation component of the standby charge are highly reliable, and more likely to provide power during system capacity shortfalls or any other subset of hours than resources that are unable to achieve such high availability and low variability levels. However, as the Commission wishes to incent deployment and operation of

resources so as to reduce grid stress during system capacity shortfalls, it is important to recognize that simply relieving those resources from charges that they do not cause would not be sufficient to achieve its goals. The Emergency Proclamation provides a case in point, offering a clear economic signal tied to the response it sought, by providing a capacity payment of \$0.75 per kWh committed in response to a day-ahead alert, and an additional \$2.00/kWh for actual demand reduction in response to a CAISO notice in association with a CAISO Grid Warning or Grid Emergency. This proposal builds on the reasoning behind that concept, as well as its fundamental structure. A reasonable incentive mechanism that encourages investment in resilient infrastructure that permanently reduces stress on the grid, while also spurring the delivery of additional resources in response to capacity shortfalls, is both appropriate and more likely to result in the desired outcome than seeking to leverage greater response without any true compensation for it.

**2. How should existing programs like the Make Ready and Temporary Generation program be leveraged to address a system shortfall, particularly in the net peak hours?**

Bloom Energy's proposals do not contemplate utilization of either the Make Ready or the Temporary Generation program.

**3. How should existing microgrids that have been awarded grant funds (e.g., projects awarded funding by the California Energy Commission or investor-owned utilities via EPIC) be further leveraged to reduce load, especially during net peak hours?**

*Bloom Energy reserves its response to this question.*

**4. Approximately how many megawatts could existing programs address during the net peak hours in 2022? Please provide estimates per program.**



MCST – The proposed microgrid tariff has the potential expand the microgrid footprint in California by at least 150 MW by the end of calendar year 2022, if the economic signals it proposes have been put in place, with an additional [x] MW by Summer 2023.

NEMFC Storage Pairing Proposal – The suggested change to the NEMFC tariff would increase resiliency infrastructure by at least 5- 10 MW before the end of calendar year 2022, with as much as 20 MW by Summer 2024.

#### **D. Modifications to Existing Microgrid Tariffs**

##### **1. Which specific existing tariffs should be modified, or further modified, to enable microgrids to address a system capacity shortfall during net peak hours (e.g., the behind-the-meter microgrid tariffs)?**

Bloom Energy’s proposed MCST would not modify the current BTM Microgrid Tariff established as part of D. 21-01-018, nor any existing BTM or other tariffs. Rather, it would be a new tariff specifically tailored to address the reliability and capacity shortfall concerns addressed in this phase, in addition to “the Governor’s and the Commission’s overall goals,” as the Ruling suggests are the key objectives. The MCST would contribute to meeting the system capacity shortfall and other reliability and resilience needs without relying on the ever-growing fleet of diesel back-up generators, which are increasing local air pollution, health and other concerns.<sup>13</sup>

Bloom Energy’s NEMFC Storage Pairing proposal would modify the existing NEMFC tariff, consistent with the approach provided in PG&E’s AL 5308-E.

##### **a. Provide an overview of how the tariffs should be modified.**

As noted above, the NEMFC Storage Pairing Proposal would modify the existing NEMFC tariff to enable the deployment of storage in association with fuel cells. This change,

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<sup>13</sup>“Hidden Grid: More Than Eight Gigawatts of Fossil Fueled Back-Up Generators Located in Just Five California Districts,” (May 2020), available at: <http://www.lgsec.org/wp-content/uploads/2020/05/BUGs-in-5-CA-Air-Districts.pdf>.

consistent with the approach taken by PG&E's AL 5308-E, would provide participating customers with greater flexibility to reduce grid stress, including during system capacity shortfalls. While AL 5308-E originally required that the storage device be charged from the paired eligible NEMFC generator as opposed to the LSE's grid - thus ensuring that only the NEMFC generator is the only technology receiving NEMFC credits – it may be appropriate to modify this requirement. D. 20-06-017 allowed for paired storage devices to charge from the grid prior to a PSPS event, and removed storage sizing limits. Aligning the NEMFC tariff with the storage requirements set forth in D. 20-06-017 would be a reasonable approach that allows for greater resiliency when needed most.

**b. Describe the outcome that the tariff change is intended to achieve (e.g., accelerate deployment of new microgrids or enhance system benefits of existing microgrids) and an estimate of the megawatt potential, if possible.**

The immediate intent of the MCST is to support system reliability, including both system capacity shortages as well as “the Governor’s and the Commission’s overall goals,” by accelerating deployment of new microgrid facilities and leveraging existing facilities. This would be achieved, consistent with economic principles long adhered to by the Commission, by incenting customer investment and behavior to provide a net economic benefit and result in a more reliable, and more economically efficient, energy system. If deployed as described, this program could generate approximately 150 MW of microgrid generation by the end of calendar year 2022, and 250 MW by Summer 2023.

The proposed changes to implement the NEMFC Storage Pairing proposal would eliminate a barrier to additional customer investment that would reduce system capacity shortfalls and better support system reliability.

- c. Describe how that outcome can help address a system capacity shortfall (e.g., by making additional generation or reducing load during net peak hours, or by reducing the impact of rotating outages) and how the availability of those resources will be ensured.**

The MCST is intended to provide permanent load reductions, as well as to enable customers choosing to participate to offer additional capacity to the grid when it is needed, particularly during system capacity shortfalls or other grid emergencies. Capacity assurance is a key component to the eligibility of the proposed tariff. By identifying capacity that electric system planners rely on, and system operators could call on during emergency events, participating microgrids could serve the dual function of reducing load while also serving as source of emergency energy when energy is in short supply.

- d. Approximately how many MW could the changes address during the net peak hours in 2022?**

The MCST is designed to address system capacity shortfalls in two ways. First, the MCST would offer a permanent load reduction mechanism, reducing demand on the increasingly stressed grid and reducing the quantity of energy needed to achieve supply-demand balance, particularly beneficial in those net peak hours when energy is scarce. Second, the MCST would enable participating customers to designate capacity in the planning timeframe that could be made available during system capacity shortfalls or other grid emergencies, and to provide that capacity if emergency conditions actually arise.

- e. Name the existing tariffs by identifying the rate schedule, rule, contract, or other document, or combination of documents that should be modified.**

MCST - No modifications of existing tariffs would be required to implement the MCST. This proposal would result in a new, streamlined tariff that specifically addresses the

Commission's call for resources that can meet increasing reliability and resiliency concerns, particularly system capacity shortfalls.

NEMFC Storage Pairing - This proposal would require amending Electric Schedule NEMFC (Net Energy Metering for Fuel Cells) to allow deployment of storage, including batteries, in association with fuel cells participating in NEMFC.

#### **IV. Conclusion**

Bloom Energy appreciates the opportunity to collaborate on solutions that will further the reliability and resiliency capabilities of California's energy infrastructure. The expedited nature of this proceeding underscores the urgency of the potential capacity shortfall, and the Commission should be commended for the rapid response of this proceeding. We believe the MCST and NEMFC Storage Pairing proposals discussed in this filing would materially add to the Commission's growing reliability concerns, including system capacity shortfalls, while contributing to the Governor's and the Commission's overall goals for the energy system. Bloom Energy looks forward to working with Commission Staff and all stakeholders to build on these proposals, and to develop final proposals that offer substantial benefits to all customers and the Commission's objectives.

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Respectfully submitted,

/s/

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## Attachment A

### MICROGRID CAPACITY SERVICES TARIFF (MCST)

- Pursuant to Pub. Util. Code Section 8370(d) microgrid means any interconnected system of loads and energy resources, including, but not limited to, distributed energy resources, energy storage, demand response tools, or other management, forecasting, and analytical tools, appropriately sized to meet customer needs, within a clearly defined electrical boundary that can act as a single, controllable entity, and can connect to, disconnect from, or run in parallel with, larger portions of the electrical grid, or can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure.
- For purposes of this tariff, any microgrid must meet the requirements of Pub. Util. Code Section 218(b)(2).
- Pursuant to Pub. Util. Code Section 8370(b), distributed energy resources included in a microgrid authorized under this order shall comply with the emissions standards adopted by the State Air Resources Board pursuant to the distributed generation certification program requirements of Section 94203 of Title 17 of the Cal. Code of Regulations, or any successor regulation.
- Distributed energy resources included in a microgrid authorized for service under this tariff shall have the ability to provide continuous operation for 72 or more hours.
- Microgrid configuration must contain at least one technology capable of providing critical load of the facility that can meet the following performance standards
  - 95 percent availability factor
  - Capacity Factor or self-supply factor greater than 85 percent
- A microgrid to be served under such tariff shall be sized to meet customer peak load needs during de-energization or other grid outage events and not to exceed the limit included in Rule 21, if any.
- Customers of large electrical corporations taking Bundled service, Community Choice Aggregator (CCA) service, or Direct Access (DA) service shall be eligible for service under such microgrid tariff.
- Customers taking service under such microgrid tariff would receive a capacity payment of 0.02/kW, with payment equivalent to that offered through the Emergency Proclamation for energy provided in response to CAISO Grid Warning or Grid Emergency notice (i.e., \$2/kWh).

- Customers taking service under such microgrid tariff shall be exempt from any new or additional charges not included in their Otherwise Applicable Schedule (OAS), except interconnection inspection fees. Customers taking service under such microgrid tariff shall be exempt from the standby reservation charge pursuant to D. 21-07-011. All other charges, including but not limited to, Transmission Charges, Distribution Charges, Monthly Customer Charges, Minimum Charges, Demand Charges, and non-energy related charges, shall be calculated according to the Microgrid customer's OAS for all energy supplied by their LSE prior to the netting of energy charges and credits.
- Excess generation exported will be compensated at the generation rate component of the customer's OAS on a net annual basis.
- Excess power generated during normal operation may be credited against a customer's total load across all meters.
- Eligible customers must communicate to respective LSE's a specified capacity available upon call during certain grid events.
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